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THE NATIONAL TURKEY IMPROVEMENT PLAN

Emblem authorized for use by official State agencies and industry members to signify cooperation in the National Turkey Improvement Plan

U. S. DEPARTMENT OF AGRICULTURE

IN 1937 a tentative turkey-improvement plan was developed by a National Turkey Improvement Committee. That plan was intended as a guide for State turkey-improvement work until such time as there was sufficient demand to justify the formulation of a National Turkey Improvement Plan.

In 1941 the National Turkey Federation appointed a special committee to study State programs and to develop a turkey-improvement plan that could be applied throughout the country. The plan developed by the committee was presented at the 1943 annual meeting of the Federation and unanimously adopted by the general session.

The National Turkey Improvement Plan became operative September 25, 1943, with the approval of the Secretary of Agriculture and under authority of an appropriation made by Congress for the Bureau of Animal Industry, United States Department of Agriculture, to be used in cooperation with State authorities in the administration of regulations for the improvement of poultry, poultry products, and hatcheries. Authority for the administration of the plan is now contained in the Department of Agriculture Organic Act of 1944. (Public 425, 78th Congress, H. R. 4278.)

Acceptance of the turkey plan is optional with States and individual members of the industry within States. It is administered in each State by an official State agency cooperating with the Bureau of Animal Industry, United States Department of Agriculture.

The turkey plan will require revision from time to time to conform with the development of the industry and with new information as it becomes available. Revisions will be considered at meetings of authorized representatives of the turkey breeders and hatcheries with representatives of the Bureau of Animal Industry.

The primary objectives of the National Turkey Improvement Plan are to improve the production and market quality of turkeys and to reduce losses from disease. Through it turkey breeding stock, hatching eggs, and poults may be identified, authoritatively, with respect to breeding quality and degree of freedom from pullorum disease. The application of the provisions of the plan should cause turkey production to be more efficient and thus aid in making the enterprise more profitable.

THE NATIONAL TURKEY IMPROVEMENT PLAN[1]

Prepared by the Bureau of Animal Industry, in cooperation with representatives of the official State agencies, the National Turkey Federation, and turkey breeders and hatcheries

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ARTICLE 1. GENERAL REGULATIONS

SECTION 1. DEFINITIONS

REGULATION 1.—For the purposes of this plan the following words, phrases, names, and terms shall be construed, respectively, to mean—

Paragraph 1. **Turkey plan.**—The National Turkey Improvement Plan.

Par. 2. **Chicken plan.**—The National Poultry Improvement Plan.

Par. 3. **Official State agency.**—The agency recognized by the Bureau of Animal Industry, United States Department of Agriculture, to cooperate in the administration of the turkey plan within the State. It may be the State department of agriculture, State college of agriculture, State poultry improvement board or association, or other agency recognized officially by the State government.

Par. 4. **State inspector.**—An employee or authorized representative of the official State agency whose duties in connection with the turkey plan comprise the official inspection of flocks, eggs, poults, hatcheries, turkey premises, records, and methods employed in carrying on the work of the turkey plan.

[1] The turkey improvement plan was originally described in a mimeographed statement issued in October 1943. It has been revised periodically at meetings of official delegates, representatives of the National Turkey Federation, and representatives of the Bureau of Animal Industry.

Par. 5. **R. O. P. supervisor.**—An employee or authorized representative of the official State agency whose duties in connection with the turkey plan are to represent the official State agency in its supervision of U. S. R. O. P. (U. S. Record of Performance) and U. S. R. O. M. (U. S. Register of Merit) work and to vouch for the accuracy of all U. S. R. O. P. and U. S. R. O. M. records made by the U. S. R. O. P. breeders under his jurisdiction.

Par. 6. **R. O. P. inspector.**—An employee or authorized representative of the official State agency whose duties in connection with the turkey plan are the inspection of flocks and records of U. S. R. O. P. turkey breeders.

Par. 7. **Flock-selecting agent.**—A person who has taken a course of training in and passed an examination on (1) the selection of turkey-breeding stock according to standard-bred and meat-production qualities as prescribed by the State college of agriculture or other properly constituted State agency and (2) the turkey-plan provisions as applied in the State, and who has been authorized by the official State agency to do the flock-selecting work as provided for in the breeding stages of the turkey plan. As an emergency and to take care of individual cases only, the official State agency may, at its discretion, authorize flock-selecting agents who have not taken the specified course of training. Only those persons who have demonstrated to the official State agency through work in the field that they are capable of doing satisfactory selecting work may be so authorized.

Par. 8. **State pullorum tester.**—An employee or authorized representative of the official State agency, who has training in pullorum-testing technique, a working knowledge of the plan provisions as applied in the State, and other qualifications necessary to do the pullorum-testing work as provided for in the plan; however, no person can qualify as a State pullorum tester for work in a hatchery in which he has a financial interest, either entire ownership, partial ownership, or employment.

Par. 9. **Pullorum-testing agent.**—A person who has taken a course of training in and passed an examination on (1) pullorum testing as prescribed by the State livestock sanitary authorities or officials of the State college of agriculture and (2) the plan provisions as applied in the State, and who has been authorized by the official State agency to do the pullorum-testing work as provided for in the U. S. Pullorum-Controlled and U. S. Pullorum-Passed classes. As an emergency and to take care of individual cases only, the official State agency may, at its discretion, authorize pullorum-testing agents who have not taken the specified course of training. Only those persons who have demonstrated to the official State agency through work in the field that they are capable of doing satisfactory testing work may be so authorized.

Par. 10. **Blood collector.**—A person who has been trained in the proper method of collecting blood samples for the pullorum disease test, who has passed an examination on the turkey-plan provisions as applied in the State, and who has been authorized by the official State agency to do the blood-collecting work.

Par. 11. **Eggs and hatching eggs.**—Turkey eggs and turkey hatching eggs.

Par. 12. **Baby poults.**—Poults that have not been fed or watered.

Par. 13. **Started poults.**—Poults that have been fed or watered.

Par. 14. **Breeding stock.**—Turkeys that are to be used for breeding purposes.

Par. 15. **Flock.**—All turkeys of one variety on the same premises except that crossmated birds as provided in paragraph 16 shall be construed as one flock.

Par. 16. **Crossmated flocks.**—Flocks comprised of toms of one variety and hens of another variety.

Par. 17. **Crossbred poults and hatching eggs.**—Poults and hatching eggs produced from crossmated flocks.

Par. 18. **Flock owner.**—A person, firm, or corporation maintaining a breeding flock of turkeys.

Par. 19. **Hatchery.**—Hatchery equipment on one premises operated or controlled by any person, firm, or corporation producing poults.

Par. 20. **U. S. R. O. P.**—U. S. Record of Performance.

Par. 21. **U. S. R. O. M.**—U. S. Register of Merit.

Par. 22. **Official label.**—A label, obtained through or approved by the official State agency, on which are indicated the product, the breeding stage, and the pullorum class.

Par. 23. **Standard varieties.**—Varieties of turkeys recognized by the American Poultry Association.

Par. 24. **Small varieties.**—Varieties of turkeys with weights below those recognized by the American Poultry Association for standard varieties and developed primarily to provide for small-family trade.

Par. 25. **Broad-Breasted Bronze.**—A variety of turkey developed especially for large size and extremely wide breast. In order to qualify as a Broad-Breasted Bronze in the turkey plan, both toms and hens shall measure at least 3½ inches in width of breast at a point 1¾ inches above the keel prior to the time the birds are 30 weeks of age.

Par. 26. **Hatchability.**—A percentage figure indicating the proportion of normal poults hatched of the total (not fertile only) eggs set.

SECTION 2. ADMINISTRATION AND PARTICIPATION

Regulation 1.—The official State agency shall conduct the inspection work called for in the turkey plan efficiently and shall direct, administer, supervise, and be responsible for all the work done on flock selection in the various breeding stages and on testing for pullorum disease as provided for in the turkey plan. The Bureau of Animal Industry shall have the right to terminate its cooperation with any official State agency if, after giving the agency an opportunity for an informal hearing, it is the opinion of the Bureau that the agency is not properly administering the National Turkey Improvement Plan.

Regulation 2.—All applicants for participation in the National Turkey Improvement Plan shall demonstrate to the satisfaction of

the official State agency, prior to their admission to such participation by the agency, that their facilities, personnel, and practices are adequate for carrying out the applicable provisions of the National Turkey Improvement Plan.

Regulation 3.—Any person, firm, or corporation desiring to participate in the turkey plan, except flock owners who are affiliated with participating hatcheries, shall sign an agreement with the official State agency.

Regulation 4.—With the approval of the official State agency, hatching-egg and poult dealers may participate in the turkey plan and enjoy all the privileges of participating hatcheries in the handling of hatching eggs and poults, provided all the applicable requirements for participating hatcheries are fully and completely complied with.

Regulation 5.—Participation in any phase of the turkey plan shall be construed as maintaining supervision and compliance throughout the 12 months of the year. (It is understood that a participant may withdraw from participation or that his agreement may be terminated by the official State agency for cause.)

Regulation 6.—When more than one hatchery located within a State is operated under the same name, ownership, or management, one or more of these hatcheries may not participate in the turkey plan unless all of them participate in the same breeding stage and pullorum class. In the event that any person, firm, or corporation has nonparticipating hatcheries in other States, no poults or hatching eggs shall be shipped to the participating hatcheries from the nonparticipating hatcheries.

Regulation 7.—Participants in the plan shall not purchase, receive, offer for sale, or be a dealer in or agent for breeding stock, hatching eggs, or poults other than those produced under the turkey plan, except with the written permission of the official State agency. Permission may be granted by the official State agency to purchase hatching eggs, poults, or breeding stock not produced under the turkey plan for use in breeding or hatching egg supply flocks. In such cases a report shall be made to the official State agency on each shipment received and to whom delivered.

Regulation 8.—Noncompliance with the provisions of the plan which is not corrected within a reasonable time shall bar any participant from further participation for a period of 2 years. Such action shall not be taken until a thorough investigation and hearing have been conducted by the official State agency.

Regulation 9.—All birds in participating flocks shall be identified with official sealed and numbered bands. All bands shall be obtained through or be approved by the official State agency, and all purchases of such shall be authorized by and recorded with the official State agency.

Regulation 10.—Turkey-breeding houses and pens shall be kept clean and in good condition. The land in the immediate vicinity of the turkey-breeding houses and pens shall be kept in sanitary condition.

REGULATION 11.—Hatcheries participating in any phase of the turkey plan shall be inspected and approved by a State inspector at least once during the hatching season.

REGULATION 12.—Hatcheries and all equipment shall be kept in strictly sanitary condition. After each hatch all incubators must be thoroughly cleaned and disinfected by an officially recognized method of spraying or fumigating.

REGULATION 13.—The management of a hatchery participating in the turkey plan shall maintain the identity of hatching eggs being incubated, including those that are being custom-hatched, and shall keep accurate records concerning the name and address of each flock owner; the number of eggs received from each flock owner; the name and address of each purchaser; the number, hatchery grade, if any, variety, and date of shipment or delivery of all poults and hatching eggs. These records shall be open for official inspection at all times. Eggs received and poults hatched shall be subject to inspection at all times.

REGULATION 14.—Shipment of poults shall be made in approved types of poult boxes properly ventilated and securely tied, and poults shall be shipped to reach the ultimate purchaser within the time limit prescribed by the United States Postal Regulations.

SECTION 3. TERMINOLOGY AND ADVERTISING

REGULATION 1.—All poults sold or offered for sale under the turkey plan terminology shall be normal and representative of the variety.

REGULATION 2.—Flocks, hatching eggs, hatcheries, and poults that have met the requirements of both a breeding stage and pullorum class of the turkey plan shall be designated in accordance with the stage and class attained as follows: U. S. Approved, Pullorum-Controlled; U. S. Approved, Pullorum-Passed; U. S. Approved, Pullorum-Clean; U. S. Certified, Pullorum-Controlled; U. S. Certified, Pullorum-Passed; and U. S. Certified, Pullorum-Clean.

Matings, hatching eggs, and poults that have met the requirements of one of the higher breeding stages and a pullorum class of the turkey plan shall be designated in accordance with the class attained as follows: U. S. R. O. P., Pullorum-Controlled; U. S. R. O. P., Pullorum-Passed; U. S. R. O. P., Pullorum-Clean; U. S. R. O. M., Pullorum-Controlled; U. S. R. O. M., Pullorum-Passed; and U. S. R. O. M., Pullorum-Clean.

Crossmated flocks that have met the requirements of the U. S. Approved breeding stage shall be designated as U. S. Approved Crossmated flocks and hatching eggs or poults from such flocks shall be designated as U. S. Approved Crossbred hatching eggs or poults with a descriptive phrase designating the variety of the toms and the variety of the hens used in the flock. (The variety of the tom shall be designated first in all crosses.)

REGULATION 3.—The term "broad-breasted" shall not be used in describing any variety of turkey unless the width of the breast at a

point 1¾ inches above the keel is at least 3½ inches for both toms and hens prior to the time the birds are 30 weeks of age.

Regulation 4.—Breeding stock and each bundle or package of hatching eggs and poults shipped by participants shall be designated by official labels or tags specifying the breeding stage and pullorum class. Poults that are seconds, culls, rejects, or abnormal for variety characteristics shall not be sold or offered for sale under official labels. (See regulations 1 and 8.) With the approval of the official State agency, the hatching egg supply flock owner of a participating hatchery need not officially label each consignment of hatching eggs delivered to the hatchery.

Regulation 5.—Started poults shall be labeled as such, and all the poults in each lot sold or offered for sale shall be of the same age (hatching date) unless otherwise specified.

Regulation 6.—The National Turkey Improvement Plan emblem (see cover page) and the official terms and various designs illustrative of the breeding stages and pullorum classes (figs.1–7) may be used only by participants who have met the specific requirements.

Regulation 7.—Whenever the National Turkey Improvement Plan emblem or other reference to participation in the plan is used in advertising, the breeding stage and pullorum classification shall be shown.

Regulation 8.—Poults and hatching eggs produced under the rules and regulations of the turkey plan shall lose their identity under the turkey-plan terminology when they are purchased for resale by nonparticipants.

Regulation 9.—All advertising must be in accordance with the rules and regulations of the plan, the official State agency, and the Trade Practice Rules of the Federal Trade Commission for the Baby Chick Industry. In the event that the advertising of any participant is found to be in violation of this regulation, the participant shall be placed upon probation for a period of 2 years during which he shall submit every proposed piece of advertising to the official State agency for approval before it is printed. Failure of a participant on probation to submit advertising for approval will be sufficient cause for dropping him from participation.

Regulation 10.—Where descriptive terms are used in advertising, in addition to the official terminology of the turkey plan, such terms shall be clearly explained.

ARTICLE 2. BREEDING STAGES

SECTION 1. GENERAL PROVISIONS

Paragraph 1. Participation in one of the pullorum classes shall be a prerequisite to participation in any of the breeding stages of the turkey plan, except as provided for in paragraph 7, section 4, page 12.

Par. 2. Eligibility for participation in any breeding stage of the plan shall be confined to standard varieties and other varieties recognized by the official State agency.

Par. 3. Except in the case of crossmated flocks only one variety of turkey shall be kept on a farm unless, where more than one variety is kept, ample provision has been made to keep the varieties and their eggs separate in a manner satisfactory to the official State agency.

Par. 4. With the written approval of the official State agency, artificial insemination may be used in lieu of or as a supplement to natural matings except in U. S. R. O. P. candidate or U. S. R. O. M. candidate matings. The products of such matings must be so labeled.

Par. 5. In the selection of birds for any breeding stage the following specifications should be emphasized:

(*a*) Conformation: Body should be deep and relatively rectangular in shape, flesh of breast well developed, giving this region a rounded fullness, in contrast to the sharp-keeled birds lacking in muscular development. The front point of the keel should be well fleshed and free from coarseness. The back should be flat and wide over its entire length. Leg bones should be sturdy, of medium length, and without coarseness. Normal turkey carriage for posture (body carried at an angle of 35° to 45° from the horizontal) is important, as are sturdy, strong legs placed squarely under the body.

(*b*) Shape of breastbone: Breastbone should be straight, relatively long, and parallel to the back. It should extend well up between the lower thighs (drumsticks) as the bird is suspended by the legs.

(*c*) Rate of maturity: Birds showing definite indications of late maturity should not be approved.

Par. 6. The body weights by ages for various varieties, given in table 1, should be considered as suggested minimums or maximums in all breeding stages.

TABLE 1.—*Suggested minimum body weights for standard and Beltsville Small White varieties and suggested maximum body weights for small varieties of turkeys*

Sex and age	Minimum body weight				Maximum body weight	
	Broad-Breasted Bronze	Standard varieties other than Bronze	Standard Bronze	Beltsville Small White	Beltsville Small White	Other small varieties
Toms:	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
24 weeks	18	14	15	12	16	17. 5
26 weeks	20	15. 5	16. 5	13. 5	18	19. 5
28 weeks	22	17	18	15	20	21. 5
30 weeks	23	18	19	16	22	23. 5
32 weeks	24	19	20	17	23	24. 5
Hens:						
24 weeks	12	8. 5	9. 5	7	10	11
26 weeks	12. 5	9	10	7. 5	10. 5	11. 5
28 weeks	13	9. 5	10. 5	8	11	12
30 weeks	13. 5	10	11	8. 5	12	13
32 weeks	14	10. 5	11. 5	9	12. 5	13. 5

Par. 7. All eggs used in any breeding stage of the turkey plan shall be reasonably uniform in size and shape, sound in shell, and shall weigh at least 2½ ounces each, except that a minimum of 2⅛ ounces each or 26 ounces to the dozen shall apply to the Beltsville Small White and other small varieties. Nonpedigreed hatching eggs shall be trayed and the poults boxed with a view to uniformity of size.

Par. 8. The selection of birds in a flock to qualify as U. S. Approved or U. S. Certified by a State inspector shall be regarded as one official inspection, provided a complete inspection is made and so reported.

SECTION 2. U. S. APPROVED BREEDING STAGE

Paragraph 1. **U. S. Approved flocks.**—These flocks shall meet the following requirements: Toms and hens shall be carefully selected once each year for constitutional vigor and standardbred qualities of a reasonably high degree.

(GREEN)

FIGURE 1.—Design used to identify U. S. Approved flocks, eggs, poults, and hatcheries.

Par. 2. The method of selecting turkey breeding stock for standardbred and meat-production qualities prescribed by the State college of agriculture or other properly constituted State agency shall serve as a basis for the selection of toms and hens. Recommendations of special committees of the National Turkey Federation and the American Poultry Association on turkey type, weight, and other variety characteristics may properly be used as guides in developing and improving standards of selection. (See Outline for Selecting Breeding Turkeys, p. 33.) Emphasis at all times should be placed upon uniformity as regards conformation, size, color, carriage, and appearance of the birds remaining in the breeding flock after selection is completed. All birds to be used in U. S. Approved breeding flocks shall be selected by a State inspector or by a flock-selecting agent.

Par. 3. All birds selected for U. S. Approved breeding flocks shall be banded at the time of selection, with sealed and numbered leg or wing bands obtained from the official State agency. Birds rejected by the State inspector or the flock-selecting agent shall have leg and wing bands removed, and shall be kept separate from the breeding flock. The selection of birds for U. S. Approved flocks shall be completed prior to March 1, and at least 10 days before any eggs are

saved for hatching purposes, except that this 10-day interval shall not be required if all the toms found in the breeding flock are approved. No birds shall be selected and approved earlier than at 22 weeks of age.

Par. 4. Before any flock other than one affiliated with a participating hatchery may be recognized as a U. S. Approved flock, it must be inspected and approved by a State inspector. Each year at least one-third of the hatchery flocks supplying eggs to a U. S. Approved hatchery and at least one-third of the flocks selected by each flock-selecting agent shall be inspected and approved by a State inspector. The inspection of a flock by a State inspector shall include the physical examination, by handling, of a sufficient number of toms and hens to satisfy him that the flock-selection work performed meets the requirements of the U. S. Approved breeding stage.

Par. 5. No birds except those with official sealed and numbered leg or wing bands shall be allowed in the breeding flocks, and no toms shall be allowed with any other hens of breeding age on the same premises except in U. S. R. O. P., U. S. R. O. M., or candidate matings.

Par. 6. **U. S. Approved hatching eggs.**—Such eggs shall come from U. S. Approved flocks.

Par. 7. **U. S. Approved poults.**—They shall be hatched from U. S. Approved hatching eggs and in U. S. Approved hatcheries.

Par. 8. **U. S. Approved hatcheries.**—These hatcheries may not incubate, hatch for sale, or sell hatching eggs and poults other than those produced under the breeding stages of the turkey plan. U. S. Approved hatcheries may hatch for sale and sell both U. S. Approved and U. S. Certified poults of the same variety, provided adequate segregation of eggs and poults is practiced and ample records are kept to satisfy the official State agency that there is no mixing or interchanging from one breeding stage to another.

SECTION 3. U. S. CERTIFIED BREEDING STAGE

Paragraph 1. **U. S. Certified flocks.**—These flocks shall fulfill all the requirements of U. S. Approved flocks and shall be free from disqualifications. The hens shall be mated to any of the following types of toms: (*a*) U. S. R. O. P. toms, (*b*) sons of U. S. R. O. M. matings, (*c*) toms from mass matings of U. S. R. O. M. hens with sons of U. S. R. O. M. matings, and (*d*) toms from U. S. R. O. M. progeny matings. The toms shall be selected by a State inspector and the hens by a State inspector or a specially authorized flock-selecting agent. All flocks shall be inspected and approved by a State inspector at least once during the breeding season. After the second year of U. S. Certified breeding work on any farm, hens to be used as breeders shall be from U. S. Certified flocks or from U. S. R. O. P. or U. S. R. O. M. matings.

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(YELLOW)

FIGURE 2.—Design used to identify U. S. Certified flocks, eggs, poults, and hatcheries.

Par. 2. **U. S. Certified hatching eggs.**—Such eggs shall come from U. S. Certified flocks.

Par. 3. **U. S. Certified poults.**—They shall be hatched from U. S. Certified eggs in U. S. Certified hatcheries or in U. S. Approved hatcheries. When hatched in U. S. Approved hatcheries adequate segregation of eggs and poults must be provided and ample records must be kept to satisfy the official State agency that there is no mixing or interchanging from one breeding stage to another.

Par. 4. **U. S. Certified hatcheries.**—These hatcheries may hatch for sale and sell U. S. Certified eggs or poults only. They shall fulfill all the requirements of U. S. Approved hatcheries.

SECTION 4. U. S. RECORD OF PERFORMANCE BREEDING STAGE

Paragraph 1. U. S. Record of Performance embraces records of egg production, hatchability, and body weight made on the breeder's premises under official supervision and similar records made at State colleges of agriculture, and State and Federal experiment stations, when such records are passed on by the official State agency and when the individual birds meet other U. S. R. O. P. requirements. The birds produced by State colleges of agriculture and State and Federal experiment stations may be recognized as U. S. R. O. P. only for the use of U. S. R. O. P. breeders in their breeding work. The primary objective of this and the U. S. R. O. M. breeding stage is to produce young toms to head U. S. Certified flocks. When any disastrous event occurs that affects the pedigree-breeding and progeny-testing work of any advanced-turkey breeder, and when such event is immediately brought to the attention of his official State agency, this agency may, with the consent of the Bureau of Animal Industry, make an equitable revision of the qalifying requirements.

(BLUE)

FIGURE 3.—Design to identify U. S. R. O. P. hatching eggs, poults, and breeding stock.

Par. 2. **U. S. R. O. P. turkey breeder.**—A U. S. R. O. P. turkey breeder is a person, firm, or corporation maintaining turkey matings in accordance with the provisions of the U. S. R. O. P. breeding stage. In addition to the U. S. R. O. P. and U. S. R. O. P. candidate matings, all other mated hens supplying hatching eggs to such turkey breeder or to any hatchery owned or operated by him shall qualify for one of the breeding stages of the turkey plan.

Par. 3. The trap-nest used in U. S. R. O. P. work shall be of an approved type and shall be kept in perfect working order at all times. The breeding farm and all breeding records shall be subject at all times to unannounced inspections by a State inspector. At the time of each inspection, the inspector shall have sole charge of the trap-nests and of eggs laid.

Par. 4. The breeder shall send to his supervisor, not later than the tenth day of each month, a complete report of all trap-nesting for the previous month. He shall also send to his supervisor a complete record of all pedigreed eggs set, poults hatched, and poults banded on N. P. I. P. Form 8 or a substitute form at the end of each four hatches. The egg production, pedigree, and sales records shall at all times be open to examination by the R. O. P. supervisor or inspector.

Par. 5. Each candidate hen of a U. S. R. O. P. breeder shall be trap-nested at regular intervals every day for a period of at least 8 consecutive weeks from the date the first normal egg is laid in a trap-nest. The period for measuring hatchability shall be a minimum of 8 consecutive weeks by individual hens, pens, or farms agreed upon during the hatching season by the supervisor and the breeder.

Par. 6. All hens trap-nested on the premises of a U. S. R. O. P. breeder shall be considered as entered under U. S. R. O. P. super-

vision with the following exceptions: (*a*) All qualified U. S. R. O. P. hens may be trap-nested. (*b*) He may, with the approval of the official State agency, trap-nest any other variety he is developing as a basis for future U. S. R. O. P. work. (*c*) With the approval of the official State agency, hens in their second or subsequent production years may be privately trapped to complete records that were begun before U. S. R. O. P. work was undertaken.

Par. 7. An R. O. P. breeder who fails to qualify for one of the pullorum classes may continue to participate in the R. O. P. breeding stage as long as he satisfies the official State agency that he is proceeding as rapidly as possible to qualify for one of the pullorum classes. During this period each sale of hatching eggs, poults, and breeding stock must first be approved by the official State agency.

Par. 8. **U. S. R. O. P. candidate matings.**—These matings shall be comprised of U. S. R. O. P. candidate hens mated to a U. S. R. O. P. tom to which the following provisions apply:

(*a*) Only one tom shall be allowed in a mating at any one time and the date of entry and removal of toms shall be properly recorded.

(*b*) The hens shall be trap-nested for a minimum period of 8 consecutive weeks as specified in paragraph 5.

(*c*) Each egg shall be accurately identified as to the hen and the tom or pen from which it came.

(*d*) For each hen an accurate record shall be kept of all eggs laid during the trapping period, the number of eggs sold, the number of eggs incubated, the number of poults hatched, and the number banded.

(*e*) The poults from such matings shall be banded with sealed and numbered official wing bands marked "Cand." to differentiate them from U. S. R. O. P. poults.

Par. 9. Each U. S. R. O. P. candidate shall be banded with a sealed and numbered official leg band. No hens other than those entered in U. S. R. O. P. shall be allowed in the pens where U. S. R. O. P. candidates are being trap-nested, except with the approval of the official State agency.

Par. 10. To be eligible for the U. S. R. O. P. entry, all hens shall have been raised from U. S. R. O. M. matings, U. S. R. O. P. matings, or U. S. Certified flocks or other flocks of breeding satisfactory to the official State agency and the individual birds must meet the body type requirements prescribed by the official State agency.

Par. 11. **U S. R. O. P. hens.**—In order to qualify for U. S. R. O. P., hens shall meet the following requirements:

(*a*) Be trap-nested in a single-tom mating under official supervision as specified in paragraph 5 of this section.

(*b*) Produce eggs at the rate of at least 50 percent during the first 8 weeks of trap-nesting.

(*c*) Produce eggs that hatch at the rate of 70 percent or more of all eggs set, provided that the official percentage hatchability shall be based on all the normal eggs produced by the candidate during the period for measuring hatchability and a minimum of 20 poults. At altitudes of 3,000 to 3,499 feet the minimum qualifying hatchability percentage shall be 65 and at altitudes of 3,500 feet or more, the minimum qualifying hatchability percentage shall be 60. All poults

hatched shall be counted. The official percentage of hatchability shall be expressed as a whole number.

To arrive at a whole number with which to express the average, round down on all decimals less than 0.50 and round up on all decimals of 0.50 or more; e. g., where the calculated average is 69.49 percent, the official average shall be reported as 69 and where the average is 69.50 or 69.51, the official average shall be reported as 70 percent.

(*d*) Be a reasonably good representative of the variety in the judgment of the R. O. P. inspector and be of at least qualifying body weight for young hens (due allowance being given to the 6-pound tolerance), as set forth in the latest revision of the American Standard of Perfection. For varieties not included in the Standard of Perfection, the type and qualifying weight shall be established by the official State agency. The official body weight shall be expressed as a whole number and shall be taken by the breeder or the R. O. P. inspector at or about the time the candidate begins egg production, provided that when the weights are taken by the breeder they shall be checked by the R. O. P. inspector at the time of his next inspection visit to the flock. In checking weights a sufficient number of candidates shall be weighed by the R. O. P. inspector to satisfy him that the weights taken by the breeder are correct.

Par. 12. All hens meeting the above requirements shall be considered U. S. R. O. P. hens. Before such hens may be sold as U. S. R. O. P. hens or used in U. S. R. O. P. matings they shall be examined and banded by the R. O. P. supervisor or inspector with a U. S. R. O. P. sealed official leg band.

Par. 13. The U. S. R. O. P. breeder and the R. O. P. inspector shall record the leg-band numbers of all U. S. R. O. P. candidates showing a disqualification or laying eggs of undesirable shape or shell texture. Such hens shall not qualify as U. S. R. O. P. hens. The R. O. P. inspector may remove the U. S. R. O. P. leg band from any hen which develops these disqualifications or defects subsequent to qualification.

Par. 14. **U. S. R. O. P. toms.**—Toms produced from U. S. R. O. P. poults shall quality as U. S. R. O. P. toms provided they shall have passed the final individual inspection of a State inspector not earlier than at 22 weeks of age. Young toms from U. S. R. O. P. candidate matings are eligible for qualifications as U. S. R. O. P. toms after their dams qualify as U. S. R. O. P. hens. Each tom passed by an inspector shall possess strong constitutional vigor and be a good representative of the variety, shall be free from disqualifications, and shall be banded with a U. S. R. O. P. sealed and numbered official leg band when passed by the inspector. At the time of inspection and banding, the inspector shall make a complete record of the wing- and leg-band numbers and body weight of each tom banded. Privately pedigreed toms referred to in the next paragraph and that have met the progeny-test requirements for U. S. R. O. M. toms shall be considered as having met the requirements for U. S. R. O. M. and U. S. R. O. P. toms and may be officially leg-banded as such.

Par. 15. The young tom progeny of the hens which qualify as U. S. R. O. P. hens may qualify as U. S. R. O. P. toms as set forth in paragraph 14 of this section provided they meet all the requirements of

U. S. R. O. P. toms except that of being produced from U. S. R. O. P. poults.

Par. 16. To make it possible for a breeder to get started in U. S. R. O. P. breeding work within his own strain during the first year of such work on his farm, the tom mated with U. S. R. O. P. candidate hens need not be a U. S. R. O. P. tom provided he is of equal pedigree or is a U. S. Approved tom of outstanding quality. Such toms may be used in similar matings during the second year of U. S. R. O. P. breeding work, if reinspected and passed by the inspector, but not thereafter unless they qualify as U. S. R. O. M. toms. No eggs or progeny from such a mating shall be sold at U. S. R. O. P. products except that young toms whose dams qualify for U. S. R. O. P. may be permitted to head U. S. Certified flocks owned or controlled by the breeder and to head U. S. R. O. P. matings on the breeder's premises.

Par. 17. **U. S. R. O. P. matings.**—These matings shall be comprised of only U. S. R. O. P. hens mated to a U. S. R. O. P. tom. The breeder may place in the U. S. R. O. P. mating, hens that are not U. S. R. O. P. provided he does not sell pedigreed eggs, poults, or stock from such hens as U. S. R. O. P. products. The provisions of paragraph 8 shall apply to U. S. R. O. P. matings.

Par. 18. **U. S. R. O. P. hatching eggs.**—Such eggs shall come only from U. S. R. O. P. matings. Each egg shall bear the U. S. R. O. P. number of the hen that laid it and the pen or tom number of the mating.

Par. 19. **U. S. R. O. P. poults.**—They shall come only from U. S. R. O. P. eggs. The poults from each hen shall be hatched separately in pedigree baskets or sacks and shall be banded individually with sealed and numbered official wing bands at the time of removal from pedigree baskets or sacks. The poults shall be subject to inspection at any time.

Par. 20. U. S. R. O. P. eggs and poults may be produced only on a U. S. R. O. P. breeder's premises except that with the approval of the official State agency (*a*) a U. S. R. O. P. breeder may have eggs hatched by any hatchery operating under the turkey plan provided the U. S. R. O. P. breeder does the pedigreeing of the poults; and (*b*) a U. S. Approved or U. S. Certified hatchery owner may produce U. S. R. O. P. poults from purchased U. S. R. O. P. eggs for use of his hatchery-flock owners only, provided proper records of purchases are sent to the official State Agency and a State inspector does the wing-banding of these poults.

Par. 21. When U. S. R. O. P. hatching eggs are transferred from one U. S. R. O. P. breeder to another U. S. R. O. P. breeder or hatcheryman for the purpose of hatching U. S. R. O. P. poults, the conditions that shall govern such a transaction include the following: (*a*) The U S. R. O. P. breeder who sells the U. S. R. O. P. hatching eggs must send a report in triplicate at the time the eggs are shipped consisting of a list of the eggs sold, the pen or sire number and dam number of each egg, and the egg production, hatchability, and body weight of each dam, to his R. O. P. supervisor. If the eggs are shipped outside the State, these records shall be attested to by the R. O. P. supervisor,

who shall retain one copy and mail one copy to the purchaser and one to the official State agency of the State to which the eggs are shipped. (*b*) Within 5 days after incubation has begun, the purchasing U. S. R. O. P. breeder or hatcheryman must submit to his official State agency a list of the U. S. R. O. P. eggs bought. (*c*) Within 5 days after hatching time the U. S. R. O. P. breeder or hatcheryman who purchased the eggs must send to his official State agency a list of the poults hatched from each dam and their respective wing-band numbers.

Par. 22. When U. S. R. O. P. poults, young toms, or mature birds are sold or transferred by members of the industry participating in the turkey plan, the individual making the sale must send a report in triplicate to his R. O. P. supervisor at the time these products are shipped giving the number of birds sold; the leg- or wing-band number, egg production, hatchability, and body weight of each dam, and the pen or leg-band number of the sire of each poult, young tom, or mature bird. If the poults, young toms, or mature birds are shipped outside the State, these records shall be attested to by the R. O. P. supervisor, who shall retain one copy and mail one copy to the purchaser and one to the official State agency of the State to which these products are shipped.

Par. 23. **Duties of R. O. P. inspector.**—The R. O. P. inspector shall work under direction of the R. O. P. supervisor. It shall be his duty to visit and inspect the work of each U. S. R. O. P. breeder at least three times each year, his visits to be unannounced, and two of which shall be during the trap-nesting period. On each visit during the trap-nesting period he shall do the trap-nesting for the day and shall record all eggs laid by each individual bird entered in U. S. R. O. P. He shall examine hens apparently out of production to see that they are not being credited with eggs. On at least one visit he shall examine all birds in U. S. R. O. P. and U. S. R. O. P. candidate matings to see that the birds that constitute these matings are properly listed with the supervisor. He shall compare the number of eggs being incubated from each hen with the number she is credited with having laid during the corresponding period, and shall have authority to test those eggs for fertility. When the hatch is reported he shall compare his findings with the number of poults reported hatched and wing-banded. He shall be courteous to breeders at all times, but shall be on the alert to discover errors in records or violations of rules, intentional or otherwise. He shall immediately report to the supervisor any suspicious circumstances or appearance of fraud in the records or business dealings of a U. S. R. O. P. breeder.

Par. 24. All matings shall be inspected at least two times each year. One or more consecutive days of inspection by the R. O. P. inspector shall represent a single inspection. In the event of an outbreak of contagious disease on a turkey farm where U. S. R. O. P. work is carried on, inspection may be temporarily suspended.

Par. 25. **Duties of R. O. P. supervisor.**—The R. O. P. supervisor shall represent the official State agency in its supervision of U. S. R. O. P. work, and he shall vouch for the accuracy of all U. S. R. O. P. records made by authorized U. S. R. O. P. breeders

under his jurisdiction. He shall keep on file in his office at least 5 years, (*a*) a record of all qualified toms, with at least one-generation pedigree showing U. S. R. O. P. records of the female ancestors, and (*b*) a record of all qualified hens with their U. S. R. O. P. records. He shall also keep on file a record of all U. S. R. O. P. matings and all U. S. R. O. P. poults with at least one-generation pedigree.

Par. 26. The R. O. P. supervisor shall furnish the Bureau of Animal Industry, for publication, a summary of the U. S. R. O. P. and U. S. R. O. M. work under his supervision each year, which shall include the following information for each flock:

For U. S. R. O. P. candidates:

(*a*) Total number of young hens of a particular variety on the farm.

(*b*) Number of U. S. R. O. P. candidate matings.

(*c*) Number of young hens entered in U. S. R. O. P.

(*d*) Number of young hens meeting the U. S. R. O. P. requirements.

(*e*) Percentage of young hens entered meeting the U. S. R. O. P. requirements.

(*f*) Average rate of (percentage) egg production of all candidate hens.

(*g*) Average body weight of all the candidate hens.

(*h*) Average hatchability of all eggs set from all the candidate hens.

For U. S. R. O. M. candidates:

(*a*) Number of U. S. R. O. M. candidate matings.

(*b*) Number of young hens entered in U. S. R. O. M.

(*c*) Number and percentage of young toms entered meeting U. S. R. O. M. requirements.

(*d*) Number and percentage of young hens entered meeting the U. S. R. O. M. requirements.

(*e*) Average rate (percentage) of egg production of all candidate hens.

(*f*) Average body weight of all the candidate hens and toms.

(*g*) Average hatchability of all eggs set from all the candidate pens.

(*h*) Average viability of the progeny from all candidate toms and hens.

(*i*) Percentage of Grade A progeny from all candidate toms and hens.

Par. 27. The R. O. P. supervisor may bring charges to the official State agency of his State against any U. S. R. O. P. breeder for falsifying records, for unethical conduct in his business methods, or for any other cause which he may consider detrimental to U. S. R. O. P. work. On such charges being proved in a fair hearing the offending breeder must be reprimanded or suspended by the official State agency, according to the nature of the offense. (See regulation 8, page 4.)

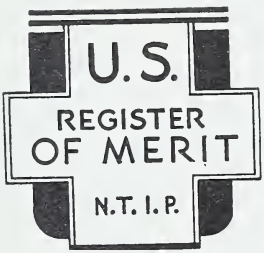
SECTION 5. U. S. REGISTER OF MERIT BREEDING STAGE

Paragraph 1. The requirements governing this breeding stage include all the requirements of the U. S. R. O. P. breeding stage and in addition include progeny test records of viability and market

quality of the progeny of qualified U. S. R. O. P. toms and hens. When any disastrous event occurs that affects the pedigree breeding and progeny testing work of any advanced turkey breeder, and when such event is immediately brought to the attention of his official State agency, this agency may, with the consent of the Bureau of Animal Industry, make an equitable revision of the qualifying requirements.

Par. 2. The U. S. R. O. P. breeder who desires to qualify birds for U. S. R. O. M. shall rear on his premises or have reared under his supervision poults hatched as set forth in paragraphs 4 or 5 of this section in order that viability and market quality requirements may be determined.

Par. 3. **U. S. R. O. M. candidate matings.**—These matings are the same as U. S. R. O. P. candidate matings except that records of the viability and market quality of the progeny are maintained under supervision. The toms and hens in such matings shall be considered U. S. R. O. M. candidates until they qualify as provided in paragraphs 4 and 5, respectively, of this section. After this qualification, the progeny of either the qualified tom or hen shall be considered as coming from a U. S. R. O. M. mating.



(PURPLE)

FIGURE 4.—Design used to identify U. S. R. O. M. males, females, and matings.

Par. 4. **U. S. R. O. M. hens.**—U. S. R. O. P. hens when mated as prescribed in paragraph 8, section 4 of this article shall qualify for U. S. R. O. M. when the following requirements are met:

(*a*) A minimum of 20 poults shall be started of those hatched during the period for measuring hatchability referred to in paragraph 5, section 4, of this article.

(*b*) Eighty percent of all poults started shall be alive at 8 weeks of age.

(*c*) Each young turkey reared of those referred to in (*a*) above shall be carefully examined not earlier than at 22 weeks of age by a State inspector or authorized agent of the official State agency. At the time of this examination, at least 60 percent of all young toms and at least 80 percent of all young hens shall be of U. S. Grade A market quality, due consideration being given to the age of the progeny and the climatic environment as related to their fattening and

pin feather condition, provided a minimum of 12 turkeys meet these requirements.

(*d*) Having met these requirements the hen may be banded by the R. O. P. supervisor or inspector with a sealed official leg band lettered "U. S. R. O. M."

(*e*) Before any progeny shall be classed as meeting the requirements of U. S. Grade A, it shall fulfill the requirements for U. S. Approved as set forth in article 2, section 2, paragraphs 1 and 2, except for the last sentence.

Par. 5. **U. S. R. O. M. toms.**—U. S. R. O. P. toms when mated as prescribed in paragraph 8, section 4 of this article, shall qualify for U. S. R. O. M. when the following requirements are met:

(*a*) All hatching eggs produced from the mating during the period for measuring hatchability and a minimum average of 20 eggs per hen and 200 eggs per mating shall be set.

(*b*) The average hatchability of all eggs set shall be 65 percent or more. At altitudes of 3,000 to 3,499 feet, the minimum qualifying hatchability percentage shall be 60, and at altitudes of 3,500 feet or more the minimum qualifying hatchabality percentage shall be 55.

(*c*) The minimum number of poults raised to 8 weeks of age shall be 75 percent of all poults started, provided that at least 100 poults from each pen shall be started.

(*d*) Each young turkey reared, of those referred to in (*c*) above, shall be carefully examined not earlier than at 22 weeks of age by a State inspector or authorized agent of the official State agency. At the time of this examination, at least 60 percent of all young toms and at least 80 percent of all young hens shall be of U. S. Grade A market quality, due consideration being given to the age of the progeny and the climatic environment as related to their fattening and pinfeather condition, provided a minimum of 70 turkeys from each mating meet these requirements.

(*e*) Having met these requirements the tom may be banded by the R. O. P. supervisor or inspector with a sealed official leg band lettered "U. S. R. O. M."

(*f*) Before any progeny shall be classed as meeting the requirements of U. S. Grade A, it shall fulfill the requirements for U. S. Approved as set forth in article 2, section 2, paragraphs 1 and 2, except for the last sentence.

Par. 6. **U. S. R. O. M. matings.**—These matings may consist of:

(*a*) U. S. R. O. M. tom remated to the same hens with which he qualified; or

(*b*) U. S. R. O. M. hen remated to the same tom with which she qualified; or

(*c*) U. S. R. O. M. tom remated to the same U. S. R. O. M. hens with which he qualified.

Par. 7. **Poults from U. S. R. O. M. matings.**—These poults shall be hatched as provided in paragraph 19, section 4, of this article and shall be banded with U. S. R. O. M. wing bands.

Par. 8. **Sons of U. S. R. O. M. matings.**—In order to qualify to head U. S. Certified flocks, a son of a U. S. R. O. M. mating shall have

passed the final individual inspection of a State inspector not earlier than at 22 weeks of age and shall be banded at the time of inspection with an official sealed and numbered leg band. These leg bands shall be stamped with the letters "U. S. R. O. P."

Par. 9. At the time of inspection the son of a U. S R. O. M. mating shall indicate strong vigor, shall show, upon handling, excellent body conformation and fleshing, and shall be an excellent representative of the variety in the judgment of the State inspector. The inspector shall make a complete record of the body weight, wing- and leg-band numbers of each tom banded.

Par. 10. The young toms from U. S. R. O. M. candidate matings described in paragraph 3 of this section are eligible for qualification as sons of U. S. R. O. M. matings after their parent mating qualifies as a U. S. R. O. M. mating.

Par. 11. **Mass matings of U. S. R. O. M. hens with sons of U. S. R. O. M. matings.**—A breeder may make mass matings of U. S. R. O. M. hens with sons of U. S. R. O. M. matings for the purpose of producing toms to head U. S. Certified flocks. Such matings need not be trap-nested but eggs produced by such matings shall be segregated and properly identified at all times. The poults from such matings shall be wing-banded at hatching time with sealed and numbered official wing bands marked "U. S. Cert." The young toms from such matings may be used to head U. S. Certified flocks after having been approved by the State inspector. After such approval they may be banded with official sealed and numbered wing or leg bands marked "U. S. Cert." The breeder shall furnish his supervisor with a complete record of the number of eggs produced by each such mating, the number of poults hatched, and the disposition of such eggs and poults.

Par. 12. **U. S. R. O. M. progeny matings.**—These matings may consist of:

(*a*) A U. S. R. O. M. tom mated to daughters of U. S. R. O. M. matings.

(*b*) A son of a U. S. R. O. M. mating mated to U. S. R. O. M. hens.

(*c*) A son of a U. S. R. O. M. mating mated to daughters of U. S. R. O. M. matings.

The U. S. R. O. M. progeny used in a U. S. R. O. M. progeny mating must be produced by a U. S. R. O. M. dam, the sister family of which she was a member having qualified at least 50 percent and a minimum of two birds for U. S. R. O. M.

The individually pedigreed young toms from such matings may be used to head U. S. Certified flocks after having been approved by the State inspector and banded with official sealed and numbered wing or leg bands marked "U. S. Cert."

ARTICLE 3. PULLORUM CONTROL AND ERADICATION CLASSES

The aim or goal in an official pullorum disease-testing program for turkeys shall be eradication rather than mere control of the disease. To that end every possible step should be taken not only

to eradicate infected birds from the breeding flocks, but also to eliminate all possible or probable avenues of infection for adult breeding stock, poults, and growing turkeys. Complete segregation of turkeys from chickens on the farm and in hatcheries at all stages of development, and during all seasons of the year, is urgently recommended.

SECTION 1. GENERAL PROVISIONS

Paragraph 1. The official State agency shall assume responsibility for the accuracy of the pullorum-testing work.

Par. 2. The official tests for pullorum disease in turkeys shall be (1) the standard tube agglutination test; (2) the rapid serum test; and (3) the rapid, whole-blood test for restricted use when approved by the official State agency and when carried out with lots of K antigen or with lots of Turkey Redigen that have been approved for use by the Bureau of Animal Industry. The rapid, whole-blood tests are restricted to use in testing flocks for U. S. Pullorum-Controlled and U. S. Pullorum-Passed classes. Beginning July 1, 1951, the rapid, whole-blood test is restricted to use in testing flocks for the U. S. Pullorum-Controlled class.

The essential features of these tests are printed in the Appendix to this publication. Modifications from these procedures may be made by an official State agency upon approval of the Bureau of Animal Industry, United States Department of Agriculture.

Par. 3. In testing for pullorum disease by means of the standard tube agglutination test or the rapid serum plate test, blood samples shall be drawn by an authorized blood collector and the testing shall be done in a laboratory recognized and approved by the official State agency.

Par. 4. All tests with pullorum or typhoid antigens of flocks in any pullorum class or candidates for any pullorum class must be reported to the official State agency within 10 days following the completion of such tests. All reactors shall be considered in determining the official classification of the flock, except reactors to variant or polyvalent antigen that are negative in tests with standard type antigen.

Par. 5. All new breeding stock (except turkeys of the same or a higher pullorum class) and stock returned to the breeder's farm from exhibits, tests, etc., must be quarantined at considerable distance from the other turkeys. Such turkeys must be kept in quarantine for at least 15 days and then officially tested and found to be negative before being added to the flock.

Par. 6. When more than one breeding flock of turkeys is maintained on the same premises, all such flocks shall be given an official pullorum classification no higher than the lowest classification attained by one of the flocks.

Par. 7. When other than breeding birds are kept on the same premises, ample provision must be made to keep these birds and their eggs separate.

Par. 8. All domesticated fowl such as chickens, ducks, geese, pheasants, guineas, pea fowl, bantams, etc., shall either be properly tested to meet the same pullorum tolerance as the breeding flock of turkeys, or be segregated from the breeding flock of turkeys at all stages of development and during all seasons of the year.

Par 9. In the event that tests to qualify or requalify flocks as U. S. Pullorum-Passed or U. S. Pullorum-Clean reveal any reactors, the owner shall have the right to submit, or the official State agency the right to request the submission of, all reactors if 5 or less, or 20 percent of all reactors with a minimum of 5 and a maximum of 20, to a laboratory designated by the official State agency for autopsy and bacteriological examination. The recommended minimum procedure for the bacteriological examination of pullorum reactors is printed in the Appendix of this publication. In case such bacteriological examination fails to reveal conclusive evidence of pullorum infection, the flock shall be construed as having had no pullorum. All reactors not slaughtered for bacteriological examination shall be removed and disposed of in a manner satisfactory to the official State agency.

Par. 10. In the event that a thorough investigation or other evidence indicates that pullorum disease or fowl typhoid outbreaks are occurring in poults, the official State agency may, at its discretion, require additional retesting of the flock or flocks, or make further autopsies and bacteriological examinations.

Par. 11. After a flock has been classified as U. S. Pullorum-Controlled, U. S. Pullorum-Passed, or U. S. Pullorum-Clean by the official State agency, the results of any retesting of such flocks during the current breeding and hatching season shall not adversely affect its pullorum classification for the season, except that if in the opinion of the official State agency the amount of reaction found in any flock is such as to be dangerous or detrimental to the operation of the plan, the official State agency shall require that flock or flocks be retested after an interval of at least 21 days or that such flocks be immediately discontinued as hatching-egg flocks. Furthermore, the official State agency may require that the hatching eggs from such flocks be removed from the incubator and destroyed prior to hatching.

Par. 12. The custom-hatching of turkey eggs or eggs of other poultry from nonparticipating flocks is not permitted in participating hatcheries.

Par. 13. In the event that eggs other than turkey or chicken eggs are to be incubated or hatched by a hatchery, such eggs shall have been produced by flocks that were properly tested to meet at least the minimum pullorum tolerance of the hatchery.

Par. 14. Each year at least one-third of the flocks participating in the pullorum classes only shall be inspected and approved by a State inspector. Field-testing or blood-collecting shall be regarded as an official flock inspection, provided a complete inspection is made and reported.

SECTION 2. U. S. PULLORUM-CONTROLLED CLASS

Paragraph 1. This is a tolerance class. No breeder or hatchery should be content with having qualified for this class. Control and

(YELLOW)

FIGURE 5.—Design used to identify U. S. Pullorum-Controlled flocks, eggs, poults, and hatcheries.

eradication measures should be practiced continuously with a view to reducing the percentage of reactors each year and qualifying for the U. S. Pullorum-Passed class and then the U. S. Pullorum-Clean class as soon as possible.

Par. 2. **U. S. Pullorum-Controlled flocks.**—These flocks shall meet the following requirements:

(*a*) All turkeys to be used as breeders shall be tested for pullorum disease when more than 4 months of age under the supervision of an offical State agency, and shall contain fewer than 2 percent reactors, the last test being made within 6 months immediately preceding the date of first sale of hatching eggs, poults, or breeding stock from such flocks.

(*b*) All indicated carriers of pullorum disease shall be removed from the premises on completion of the test and disposed of in a manner satisfactory to the official State agency.

(*c*) All birds remaining in the breeding flock shall be properly leg- or wing-banded.

(*d*) Individual birds introduced into U. S. Pullorum-Controlled flocks shall have passed, within 6 months, a negative official test for pullorum disease.

Par. 3. A flock containing 2 percent or more of reactors on the first test, on being retested at intervals of not less than 21 days, and all reactors disposed of after each test until the percentage of reactors is fewer than 2 percent, may qualify as a U. S. Pullorum-Controlled flock.

Par. 4. **U. S. Pullorum-Controlled hatching eggs.**—Such eggs are from U. S. Pullorum-Controlled flocks.

Par. 5. **U. S. Pullorum-Controlled poults.**—These are hatched from eggs produced by U. S. Pullorum-Controlled, U. S. Pullorum-

Passed, or U. S. Pullorum-Clean flocks in a U. S. Pullorum-Controlled hatchery.

Par. 6. **U. S. Pullorum-Controlled hatcheries.**—These hatcheries operate under the supervision of an official State agency and (1) buy or sell turkey or chicken hatching eggs, (2) incubate and hatch turkey or chicken eggs, (3) brood or sell poults or chicks, or (4) are dealers in or agents for such products from only U. S. Pullorum-Controlled, U. S. Pullorum-Passed, or U. S. Pullorum-Clean flocks and hatcheries.

SECTION 3. U. S. PULLORUM-PASSED CLASS

Paragraph 1. This class, which embodies the recognition of infected premises, permits no tolerance in the official recognition of the flock. It emphasizes the advisability of retesting at frequent intervals until no reactors are found and, therefore, is a more effective step toward eradication than the tolerance class. No breeder should be content with

(RED)

FIGURE 6.—Design used to identify U. S. Pullorum-Passed flocks, eggs, poults, and hatcheries.

having qualified his flock for this class. Control measures should be practiced continuously with a view to eliminating all infection and qualifying for the U. S. Pullorum-Clean class as soon as possible.

Par. 2. **U. S. Pullorum-Passed flocks.**—These flocks shall meet the following requirements:

(*a*) All turkeys to be used as breeders shall be tested for pullorum disease when more than 4 months of age under the supervision of an official State agency, and shall contain no reactors, the last test being made within 6 months immediately preceding the date of first sale of hatching eggs, poults, or breeding stock from such flock. When reactors are found, the flock may qualify as U. S. Pullorum-Passed, provided it is retested at intervals of not less than 21 days, until one negative test is obtained.

(*b*) All birds remaining in the breeding flock shall be properly leg- or wing-banded.

(*c*) Individual birds introduced into U. S. Pullorum-Passed flocks shall come from U. S. Pullorum-Passed or U. S. Pullorum-Clean flocks only, except that individual birds from other sources may be intro-

duced, provided they are quarantined for 15 days, then officially tested for pullorum disease and found to be negative.

Par. 3. **U. S. Pullorum-Passed hatching eggs.**—Such eggs are from U. S. Pullorum-Passed flocks.

Par. 4. **U. S. Pullorum-Passed poults.**—These are hatched from eggs produced by U. S. Pullorum-Passed and U. S. Pullorum-Clean flocks in a U. S. Pullorum-Passed hatchery.

Par. 5. **U. S. Pullorum-Passed hatcheries.**—These hatcheries operate under the supervision of an official State agency and (1) buy or sell turkey or chicken hatching eggs, (2) incubate and hatch turkey or chicken eggs, (3) brood or sell poults or chicks, or (4) are dealers in or agents for such products from only U. S. Pullorum-Passed or U. S. Pullorum-Clean flocks and hatcheries.

SECTION 4. U. S. PULLORUM-CLEAN CLASS

Paragraph 1. **U. S. Pullorum-Clean flocks.**—These flocks shall meet the following requirements:

(*a*) All turkeys to be used as breeders shall be tested for pullorum disease when more than 4 months of age under the supervision of an official State agency and shall contain no reactors on the first or any subsequent test made within 6 months immediately preceding the date of first sale of hatching eggs, poults, or breeding stock from such flock.

(*b*) A Pullorum-Passed flock may qualify for the Pullorum-Clean class provided it has one additional negative test for pullorum disease at least 21 days thereafter, the last test being made within 6 months immediately preceding the date of sale of hatching eggs or poults from such flock.

(*c*) All birds remaining in the breeding flock shall be properly leg- or wing-banded.

Par. 2. Individual turkeys introduced into U. S. Pullorum-Clean flocks shall come from U. S. Pullorum-Clean flocks only, except that individual turkeys from other sources may be introduced provided they are quarantined for 15 days, then officially tested for pullorum disease and found to be negative.

(BLUE)

FIGURE 7.—Design used to identify U. S. Pullorum-Clean flocks, eggs, poults, and hatcheries.

Par. 3. Flocks of this classification shall be designated as having been U. S. Pullorum-Clean for 1, 2, 3, etc., years.

Par. 4. **U. S. Pullorum-Clean hatching eggs.**—Such eggs shall come from U. S. Pullorum-Clean flocks.

Par. 5. **U. S. Pullorum-Clean poults.**—These are hatched in a U. S. Pullorum-Clean hatchery from eggs produced by U. S. Pullorum-Clean flocks.

Par. 6. **U. S. Pullorum-Clean hatcheries.**—These hatcheries operate under the supervision of an official State agency and (1) buy or sell turkey or chicken hatching eggs, (2) incubate and hatch turkey or chicken eggs, (3) brood or sell poults or chicks, or (4) are dealers in or agents for such products from only U. S. Pullorum-Clean flocks or hatcheries.

APPENDIX

OFFICIAL TESTING FOR PULLORUM DISEASE

For the benefit of active workers in laboratory and field, suggested techniques for conducting the three recognized methods of testing are described:

The Standard Tube Agglutination Test [2]

Collection and Delivery of Blood Samples.—The blood samples shall be taken by properly qualified and authorized persons only, and in containers provided by the diagnostic laboratory or other authorized agent. The containers should be stout-walled test-tubes preferably ⅜ by 3 inches, without lip, or small well-selected medicine vials, which have been thoroughly cleaned and dried, in a hot-air drying oven. If stoppers are used they should be thoroughly cleaned and dried. All birds must be officially banded with bands supplied by the control agency.

Sufficient blood should be procured by making a small incision in the large median wing vein, with a small sharp lancet, and allowing the blood to run into the tube, or by the use of a small syringe (with 20 or 21 gage needle), which is properly cleansed between bleedings with physiological saline solution. To facilitate the separation of the serum the tubes are placed in a slanted position until the blood has solidified. After the blood has completely clotted, they are packed and shipped by mail (special delivery), rapid express, or by messenger, to the laboratory. All labeling must be clear and permanent, and may be done with a suitable pencil on etched portions of the tube, or by means of fast-gum labels.

The blood samples must reach the laboratory in a fresh and unhemolyzed condition. Hemolyzed samples should be rejected. It is imperative, therefore, to cool the tubes immediately after slanting and clotting, and unless they reach the laboratory within a few hours, to pack them with ice in special containers, or by some other cooling system which will insure their preservation during transportation. In severe cold seasons, extreme precautions must be exercised to prevent freezing and consequent laking. The samples must be placed in cold (5° to 10° C.) storage, immediately upon arrival at the laboratory.

Preparation of Antigen.—The antigen shall consist of representative strains of *S. pullorum* which are of known antigenic composition, high agglutinability, but are not sensitive to negative and nonspecific sera. A satisfactory medium which has been used for a long time has the following composition:

Water	1,000 cc.
Difco beef extract	4 gm. (0.4 percent).
Difco Bacto-peptone	10 gm. (1.0 percent).
Dry-granular agar (Difco)	20 gm. (2.0 percent).

Reaction-pH 6.8 to 7.2.

[2] The procedure described is a modification of the method reported in the Proceedings of the United States Live Stock Sanitary Association, November 30 to December 2, 1932, pages 487 to 491.

Large 1-inch test tubes, Kolle flasks or Blake bottles are streaked liberally over the entire agar surface with inoculum from 48-hour slant-agar cultures prepared from the stock cultures of the selected strains. The stock cultures may be maintained satisfactorily by transferring to new sloped agar at least once a month and keeping at 18° to 25° C. (average room temperature) in a dark closet or chest, following incubation for from 24 to 36 hours at 37° C. The antigenic composition and purity of the stock cultures should be checked consistently. The antigen-growing tubes or bottles are incubated 48 hours at 37° C. and the surface growth washed off with sufficient phenolized (0.5 percent) saline (0.85 percent) solution to make a heavy suspension or very light paste. The washings are filtered through lightly packed sterile absorbent cotton placed in the apex of a sterile funnel. The antigens of the separate strains should be combined in equal volume-density and stored in the refrigerator (5° to 10° C.) in tightly stoppered bottles.

The dilute antigen to be used in the routine testing is prepared from the stock antigen by dilution of the latter with physiological (0.85 percent) saline (C. P.) solution containing 0.25 percent of phenol (C. P.) to a turbidity corresponding to 0.75–1.00 on the McFarland nephelometer scale. The hydrogen-ion concentration of the dilute antigen is corrected to pH 8.2 to 8.5 by the addition of dilute sodium hydroxide. New dilute antigen should be prepared each day and kept cold. The diluted antigen may be employed in 2 cc. quantities in 4-inch by ½-inch test tubes or 1 cc. quantities in smaller tubes in which the final serum-antigen mixtures are made and incubated. The distribution of the antigen in the tubes may be accomplished by the use of long burettes, or special filling devices made for the purpose.

Serum Dilutions, Incubation, Etc.—The maximum dilution employed must not exceed 1 : 50 for chickens nor 1 : 25 for turkeys. The available data indicate that 1 : 25 dilution is the most efficient. In all official reports on the blood test the serum dilutions shall be indicated. The sera are introduced into the agglutination tubes in the desired amounts with well-cleaned serological pipettes or special serum-delivery devices which do not permit the mixing of different sera. The antigen and serum should be well mixed before incubation. The serum and antigen mixture must be incubated for at least 20 hours at 37° C.

Interpretation of Results.—The results should be recorded as:

N, or —, when the tube remains uniformly turbid and there is no distinct settling of antigen.

P, or +, when there is a distinct clumping of the antigen, and the liquid between and above the agglutinated particles is clear (4+).

S, when the agglutination is only partial or incomplete (1+ to 3+).

M, or missing, when samples listed on the original record sheet are missing.

H, or hemolyzed, when the blood samples were hemolyzed and unsatisfactory for the test.

B, or broken, when the sample tubes are broken on arrival, and no serum is obtained.

Some allowance must always be made for the differences in sensitiveness of different antigens and different set-ups, and therefore a certain amount of independent intelligent judgment must be exercised at all times. Also, the histories of the flocks require consideration.

The Rapid Serum Test[3]

Collection and Delivery of Blood Samples.—(See page 25 under The Standard Tube Agglutination Test).

Preparation of Antigen.—The antigen shall consist of representative strains of *S. pullorum* which are of known antigenic composition, high agglutinability, but are not sensitive to negative or nonspecific sera. A satisfactory medium which has been used for a long time has the following composition.

Water	1,000 cc.
Difco beef extract	4 gm. (0.4 percent).
Difco Bacto-peptone	10 gm. (1.0 percent).
Dry-granular agar (Difco)	20 gm. (2.0 percent).
Reaction—pH 6.8 to 7.2.	

[3] The procedure described is a modification of the method reported by Runnels, Coon, Farley and Thorpe, Amer. Vet. Med. Assoc. Jour. 70 (N. S. 23) : 660–662 (1927).

Large 1-inch test tubes, Kolle flasks or Blake bottles are streaked liberally over the entire agar surface with inoculum from 48-hour slant-agar cultures prepared from stock cultures of the selected strains.. The stock cultures may be maintained satisfactorily by transferring to new sloped agar at least once a month and keeping at 18° to 25° C. in a dark closet or chest, following incubation for from 24 to 36 hours at 37° C. The antigenic composition and purity of the stock cultures should be checked consistently.

The antigen-growing tubes or bottles are incubated 48 hours at 37° C. and the surface growth washed off with a very slight amount of 12 percent solution of sodium chloride containing 0.25 to 0.5 percent phenol, filtered through lightly packed sterile absorbent cotton placed in the apex of a sterile funnel. The washings are adjusted (using 12 percent sodium chloride containing 0.25 to 0.5 percent phenol), so that the turbidity is 50 times greater than tube 0.75 of the McFarland nephelometer or to a reading of 7 mm. by the Gates nephelometer. The individual strain antigens should be tested with negative sera for their insensitivity and with positive sera for high agglutinability in comparison with known satisfactory antigen. The antigens of the separate strains should be combined in equal volume-density and stored in the refrigerator (5° to 10° C.) in tightly stoppered bottles.

Setting Up Tests.—The tests are conducted on a suitable, smooth plate. The serum-antigen dilution is made so that the dilution will not exceed 1 : 50 when compared to the Standard Tube Agglutination test. When testing turkey blood samples it is desirable to use a serum-antigen dilution equivalent to the 1 : 25 in the slow method. The serum is added to the antigen and mixed thoroughly by use of the tip of the serum pipette. Most strong positive reactions will be plainly evident within 15 to 20 seconds. The final reading is made at the end of 2 or 3 minutes. Heating the plate at approximately 37° C. will hasten agglutination. Before reading, the plate should be rotated several times.

Interpretation of Results.—The results should be recorded as:

N, or — (negative), when the serum-antigen mixture remains uniformly turbid.

P, or + (positive), when there is a distinct clumping of the antigen and the liquid between the agglutinated particles is clear (4+).

S, or ? (suspicious), when the agglutination is only partial or incomplete (1+ to 3+).

M, or missing, when samples listed on the original record sheet are missing.

H, or hemolyzed, when blood samples are hemolyzed and cannot be tested.

B, or broken, when sample tubes are broken and no serum can be obtained.

Allowance should be made for differences in the sensitiveness of different antigens and different set-ups, and therefore a certain amount of independent, intelligent judgment must be exercised at all times. Also, the histories of the flocks require consideration. In flocks where individuals show a suspicious agglutination, it is desirable to examine representative birds bacteriologically to determine the presence or absence of *S. pullorum*.

The Rapid, Whole-Blood Test [4]

Note: The description of the preparation of the antigen is not herein reprinted because that product is produced only under license from the Secretary of Agriculture in accordance with specific directions. The procedure described for conducting the test is a modification of the method reported by Schaffer, MacDonald, Hall, and Bunyea, Jour. Amer. Vet., Med. Assoc. 79 (N. S. 32) : 236–240 (1931).

The Loop Method.—The loop method is carried out as follows: At the end of a 2½-inch length of noncorrosive wire (Brown and Sharp gage No. 24) a loop three-sixteenths of an inch in diameter is made. For convenience the wire is inserted into a small cork stopper which serves as a handle. It has been found that the blood can be measured rapidly and with sufficient accuracy by use of the wire loop. Such a loop when filled with blood, so that the blood appears to bulge out, delivers 0.02 cc. The antigen is measured by means of a medicine dropper whose tip is adjusted to deliver 0.05 cc. when operated in the vertical

[4] Complete information on this method of testing is contained in Miscellaneous Publication No. 349, The Use of the Rapid, Whole-Blood Test.

position. By this means, the proportion of antigen to blood is kept between the limits of 2 to 1 and 3 to 1, which has been found to give the most satisfactory results. A drop of stained antigen is placed on the glass plate. A loopful of blood is taken up from the wing vein. When submerged in the blood and then carefully withdrawn, the loop comes away properly filled. On looking down edgewise at the filled loop, one observes that the blood appears to bulge out. The loopful of blood is then stirred into the drop of antigen and the mixture spread to a diameter of about 1 inch. The loop is then rinsed in clean water and dried by touching it to a piece of clean blotting paper, if necessary. The test plate is rocked from side to side a few times to mix the antigen and blood thoroughly, and to facilitate agglutination. The antigen should be used according to the directions of the producer. Various degrees of reaction are observed in this as in other agglutination tests. The greater the agglutinating power of the blood the more rapid the clumping and the larger the clumps. A positive reaction consists of a clumping of the antigen in well-developed flocculi surrounded by clear spaces. This reaction is easily distinguished against a white background. A somewhat weaker reaction consists of small but still clearly visible clumps of antigen surrounded by spaces only partially clear. The interpretation of these partial reactions should be the same as that of similar incomplete "tube method" agglutination reactions. Between this point and a negative or homogeneous smear there sometimes occurs a very fine granulation barely visible to the naked eye; this should be disregarded in making a diagnosis.

The very fine marginal flocculation which may occur just before drying up is also regarded as negative. In a nonreactor the smear remains homogeneous. A glass plate about 15 inches square providing space for 48 tests have proved satisfactory for this work. The use of the plate enables the tester to have a number of successive test mixtures under observation without holding up the work to wait for results before proceeding to the next bird.

RECOMMENDED MINIMUM PROCEDURE FOR BACTERIOLOGICAL EXAMINATION OF PULLORUM REACTORS

(1) Pericardial sac, peritoneum, and oviduct are cultured on beef extract agar slants by means of sterile cotton swabs. Sterile technic should be observed. (Primary culture of these organs in beef extract broth and transfer to beef extract agar, optional.)

(2) Ovary or several small, particularly malformed ovarian follicles, gall bladder, ileal contents, and portions of pathologic objects such as cysts, if present (approximately 1 gram of material per 20 ml. of enrichment medium in 1 inch tubes) are placed into individual tubes of Selenite broth. After 24 hours' incubation at 37° C., a loopful of culture from each tube is streaked on one-third plate of SS agar and Bismuth-Sulfite agar. (Tetrathionate broth with or without 1:200,000 brilliant green, MacConkey's Desoxycholate, and D. C. L. S. agar, optional).

(3) Suspicious single colonies from agar slants and plates are subcultured on agar slants. Cells from the subcultures are transferred to tubes of nutrient carbohydrate broth.

Inoculation into 1-percent tryptone broth for exclusion of indol production and into urea medium (Proc. Soc. Exp. Biol. & Med. 1941, 47: 108) for exclusion of urease activity, is advised.

Nonmotility should be demonstrated (in broth or 0.3 percent semisolid agar cultures).

Twenty-four-hour growth on beef extract agar slants should be used for Gram stains, and, if desired, for slide agglutination tests with known *S. pullorum* antiserums, preferably both S and X types.

(4) Formulas for media:

A. Beef extract agar:

Peptone	10 grams.
Beef extract	4 grams.
Agar	20 grams.
Water	1,000 ml.

Dissolve peptone, and beef extract in water. Adjust to pH 7.0 (at 20° C.). Add agar, heat until agar is dissolved, tube and autoclave.

B. Carbohydrate broth:

Peptone	10 grams.
Beef extract	4 grams.
Bromthymol blue solution (1.6 gram in 100 ml. of 95 percent alcohol)	2 ml.
Water	1,000 ml.

Dissolve ingredients, divide into four equal portions and add 1 percent of dextrose, lactose, maltose, and sucrose, respectively. Adjust reaction of each medium of pH 7.0 (at 20° C.), tube and sterilize by autoclaving at 10 pounds' pressure for 10 minutes. (Sterilizing carbohydrate solutions by filtration and adding them aseptically to sterile nutrient broth containing BTB indicator, optional.)

Most of the media may be obtained in dehydrated form.

MEMORANDUM OF UNDERSTANDING FORM

Memorandum of Understanding between the Bureau of Animal Industry of the U. S. Department of Agriculture and the _____
(Name of Official State agency)
covering the cooperative work of the National Poultry Improvement Plan and/or the National Turkey Improvement Plan.

A. The Bureau of Animal Industry of the U. S. Department of Agriculture agrees:

1. To detail poultrymen to be known as Coordinators in charge of the National Poultry Improvement Plan and National Turkey Improvement Plan.

2. To administer the National Poultry Improvement Plan and the National Turkey Improvement Plan in an efficient and uniform manner among all the States where this work is undertaken.

3. To detail additional help in the administration of the National Poultry Improvement Plan and National Turkey Improvement Plan to the extent of funds available and as circumstances render advisable.

4. To pay the salary of such Bureau coordinators and additional help and such traveling expenses as are incurred under Bureau instructions and authorized by the fiscal regulations of the United States Department of Agriculture.

5. To approve all antigen used in the rapid, whole-blood test for pullorum disease.

6. To permit the use of the prefix "U. S." in connection with other terms in describing, advertising, and selling hatching eggs, chicks, poults, and breeding stock of the various breeding stages and pullorum classes when attained and when satisfied that all the rules and regulations of the National Poultry Improvement Plan and/or the National Turkey Improvement Plan have been complied with.

7. To assemble, analyze, and release information on poultry breeding and pullorum disease control that will be of material benefit to the poultry industry.

8. To advise the representatives and leaders of the industry concerning the breeding and disease control problems with which the poultry industry is confronted.

B. _____ the official State agency, agrees:

1. To arrange for and hold a school or schools annually for the purpose of training those who desire to become proficient and qualified to do flock selecting and pullorum testing work.

2. To arrange for the holding of examinations and to authorize candidates who qualify to do flock selecting, blood collecting, and pullorum testing work.

3. To direct, supervise, and be responsible for all the work done relative to flock selection in the various breeding stages and to testing for pullorum as provided for in the National Poultry Improvement Plan and/or the National Turkey Improvement Plan.

4. To require flock-selecting agents, pullorum-testing agents, blood collectors, official State inspectors, R. O. P. supervisors and inspectors to work in cooperation with representatives of the Federal Bureau.

5. To conduct efficiently the inspection work required in the National Poultry Improvement Plan and/or the National Turkey Improvement Plan.

6. To provide for the keeping of accurate and detailed records of all the poultry improvement work done, and to make such records accessible to representatives of the Bureau of Animal Industry of the U. S. Department of Agriculture.

7. To inspect the advertising of all members of the poultry industry within its jurisdiction who are participating in the National Poultry Improvement Plan and/or the National Turkey Improvement Plan for the purpose of ascertaining whether or not they are complying with its provisions.

8. To report to the Bureau of Animal Industry of the U. S. Department of Agriculture any member or members of the poultry industry who have been discontinued from participation due to unsatisfactory compliance or who persistently fail to comply with all the provisions of the National Poultry Improvement Plan or the National Turkey Improvement Plan.

9. To provide the Bureau of Animal Industry with three copies of the current rules and regulations of the official State agency governing poultry improvement work.

10. To provide the Bureau of Animal Industry of the U. S. Department of Agriculture with three blank copies of each record form used by the official State agency in the work of the National Poultry Improvement Plan and/or the National Turkey Improvement Plan.

11. To formulate and have signed contracts or agreements between the official State agency and all participants except flockowners who are affiliated with participating hatcheries.

C. The Bureau of Animal Industry of the U. S. Department of Agriculture and the _____
(Name of official State agency)

agree:

1. That the work of the National Poultry Improvement Plan and/or the National Turkey Improvement Plan shall be cooperative.

2. That representatives of the Bureau of Animal Industry of the U. S. Department of Agriculture may confer with representatives of the official State agency from time to time for the purpose of improving methods in the work, but any deviation or departure from the established practice of the Federal Bureau must receive the approval of the Chief of the Bureau of Animal Industry of the U. S. Department of Agriculture before being adopted.

No member of or delegate to Congress or resident Commissioner shall be admitted to any share or part of this understanding or to any benefit to arise therefrom.

This Memorandum of Understanding shall become effective _____ and shall continue indefinitely but may be modified or discontinued at the request of either party. Requests for termination or any major change shall be submitted to the other party for consideration not less than 90 days in advance of the effective date desired.

In witness whereof the parties hereto have set their hands and seals:

_____ (Date)	_____
_____ (Date)	_____
_____ (Date)	_____
_____ (Date)	_____
	Chief, Bureau of Animal Industry, U. S. Department of Agriculture.
_____ (Date)	_____
	Administrator, Agricultural Research Administration, U. S. Department of Agriculture.

PROCEDURE FOR MAKING CHANGES IN THE PLAN

The following rules and procedure for making changes in the plan were originally adopted by official delegates at the National Plans Conference held in Cleveland, Ohio, July 18 and 19, 1947, and slightly amended at the conference held in St. Louis, Mo., June 26–29, 1948.

1. Submitting, Compiling, and Distributing Proposed Changes.

(*a*) Changes in the provisions of the plan may be proposed by any participant, administrative official of the plan, official State agency, industry organization, or the Bureau of Animal Industry.

(*b*) Proposed changes shall be submitted in writing through the proponent's official State agency, to reach the Bureau of Animal Industry not later than 90 days prior to the opening date of the conference.

(*c*) The name of the proponent shall be indicated on each proposed change when submitted, the proponent in all cases being either an individual or an organization. It is suggested that each proposal shall be accompanied by a brief supporting statement.

(*d*) The Bureau of Animal Industry will notify all persons on the National Poultry Improvement Plan and National Turkey Improvement Plan mailing lists concerning the dates and general procedure of the conference. Hatchery and dealer participants and R. O. P. breeders will be reminded of their privilege to submit proposed changes and to request copies of all the published proposed changes.

(*e*) The proposed changes, together with the names of the proponents and supporting statements, will be compiled by the Bureau of Animal Industry and issued in processed form. When two or more similar changes are submitted, the Bureau will endeavor to unify them into one proposal acceptable to each proponent. Copies will be distributed to State officials of the National Poultry Improvement Plan and the National Turkey Improvement Plan and U. S. R. O. P. breeders. Additional copies will be made available for meeting individual requests.

2. Official Delegates

Each State cooperating in the National Poultry Improvement plan (N. P. I. P.) shall be entitled to one N. P. I. P. official delegate, and likewise, each State cooperating in the National Turkey Improvement Plan (N. T. I. P.) shall be entitled to one N. T. I. P. official delegate. The official delegates shall be elected by a representative group of participating industry members and be certified by the official State agency. It is further suggested that the recommendations of the industry with respect to each proposed change be obtained and made available to the official delegates prior to the conference.

3. Conducting the Conference

(*a*) *Presiding Officer.*—The chairman of the conference as a whole shall be a representative of the Bureau of Animal Industry, U. S. Department of Agriculture.

(*b*) *Committees.*—A General Conference Committee of seven persons shall be selected at the opening session, consisting of the Senior Poultry Coordinator, and one member each from the following regions:

North Atlantic: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania.

South Atlantic: Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida.

East North Central: Ohio, Indiana, Illinois, Michigan, and Wisconsin.

West north central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

Western: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California.

South Central: Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas.

The committee members will be elected by the official delegates of the respective regions. This committee shall serve until the next National Plans Conference.

The following six committees shall be established to give preliminary consideration to the proposed changes, falling in their respective fields: (1) N. P. I. P. General Provisions, (2) N. P. I. P. Breeding, (3) N. P. I. P. Pullorum-Disease Control, (4) N. T. I. P. General Provisions, (5) N. T. I. P. Breeding, (6) N. T. I. P. Pullorum-Disease Control.

Each official delegate shall be appointed a voting member in one of the above six committees.

Since several of the proposals may be interrelated, the committees shall consider them as they may relate to others, and feel free to discuss related proposals with other committees.

The committee shall make recommendations to the conference as a whole concerning each proposal. The committee report shall show any change in wording, record the vote on each proposal, and suggest an effective date for each proposal recommended for adoption. The individual committee reports shall be submitted to the Secretary of the Conference, who will combine them into one report showing, in numerical sequence, the committee recommendations on each proposal.

The committee meetings, as well as the general sessions of the conference, shall be open to any interested person. Advocates for or against any proposal shall feel free to apear before the particular committee and present their views.

(*c*) *Conference consideration of proposed changes.*—At the time designated for voting on proposed changes by the official delegates, the chairman of the General Conference Committee and the six committee chairmen shall sit at the speaker's table and assist the presiding officer. The proposed changes shall be considered in numerical sequence. Each committee chairman shall present the proposals which his committee approves or recommends for adoption as follows:

"Mr. Chairman. The committee on N. P. I. P. General Provisions recommends the adoption of Proposal No. —, for the following reasons: I move the adoption of Proposal No. —." A second will then be called for. If the recommendation is seconded, discussion and a formal vote will follow. Proposals which the committee does not approve will be presented in the following manner:

"Mr. Chairman. The committee on N. P. I. P. General Provisions does not approve Proposal No. —." The chairman will then ask if any official delegate wishes to move for the adoption of the particular proposal. If moved and seconded, the proposal is subject for discussion and vote. If there is no motion for approval, or if moved, but not seconded, there can be no discussion or vote and the proposal is thereby rejected.

(*d*) *Discussion of a motion.*—Discussion on any motion must be withheld until the motion has been properly seconded, except that the delegate making the motion is privileged, if he desires, to give reasons for his motion at the time of making it. To gain the floor for a motion or for discussion on a motion, the official delegate in the case of a motion, or anyone in case of discussion on a motion, shall rise, address the chair, give his name and State, and be recognized by the chair before proceeding further. While it is considered proper to accept motions only from official delegates and to limit voting to such delegates only, it is, however, considered equally proper to accept discussion from anyone interested. To conserve time, discussion should be pointed and limited to the pertinent features of the motion.

(*e*) *New proposals.*—Proposals that have not been published and submitted to the States will be considered by the conference only with the unanimous consent of the General Conference Committee. Any such proposals must be referred to the appropriate committee for consideration before being presented for action by the general conference.

(*f*) *Voting.*—Voting will be by States and each cooperating State will be allowed one vote. Unless otherwise arranged, the N. P. I. P. official delegate or the N. T. I. P. official delegate, as the case may be, will be expected to cast his State's vote.

A roll call of States for a recorded vote will be used when requested by a delegate from the floor or at the discretion of the chairman.

All motions on proposed changes shall be for adoption. This procedure has been found to be less confusing than accepting motions for both adoption and

rejection. Aye votes will, therefore, always be for approval of the motion or adoption of the proposal, while nay votes will be for rejection.

(*g*) *Vote necessary for adoption.*—Proposed changes shall be adopted by a majority vote of the official delegates present and voting and shall become effective at the time recommended in the proposal.

ACCEPTANCE OF CONFERENCE RECOMMENDATIONS BY THE BUREAU OF ANIMAL INDUSTRY

Proposals adopted by the official delegates will be recommended to the Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, for incorporation into the provisions of the plans. The Bureau reserves the right to approve or disapprove the recommendations of the conference as an integral part of its sponsorship of the plans.

The coordinators will assume responsibility for revising and editing the National Poultry Improvement Plan and the National Turkey Improvement Plan to include the changes recommended by the conference and approved by the Bureau. The editing will not affect the substance of the proposals agreed upon.

OUTLINE FOR SELECTING BREEDING TURKEYS [5]

In selecting breeding turkeys, consider the following points, handling the birds individually.

I. *Head*

- A. Bright, round, prominent eyes of proper variety color. Reject bird if eyes are off-colored, elongated, dull, sunken, injured, blind, or missing.
- B. Short, curved beak. Reject for ostrich beak, cross beak, and elongated beak, but not for having been properly debeaked.
- C. Rugged but refined appearance, free from excess flesh. Reject for coarseness or weak appearance.
- D. Head of good depth and breadth, not elongated. Reject for crow head.

II. *Back:* Wide and flat including part over ribs. Reject for roached (arched) back, crooked back, narrow heart girth, or torn skin.

III. *Breast*

- A. Wide but not excessively so (fig. 8). Reject if too narrow to conform to N. T. I. P. regulations or if breast is too wide and lacking in depth.
- B. Parallel to back. Placing one hand on back, the other on breastbone; determine whether rear end of keel appears pushed in or dropped down away from the parallel position. Reject for either condition.
- C. Smoothly fleshed, width carried well back to rear of keel but not so much as to interfere with locomotion. Reject for heart-shaped breast (very wide in front, very narrow at rear).
- D. Breastbone (keel): Straight, moderately long, free from knobbiness. Eliminate keels crooked, noticeably curved, too short, decidedly rocker-shaped, decidedly dented, or possessing a knob which is the result of failure of flesh to surround the front point of the keel. Keel bone should be about the same length as the shank.
- E. Crop region; reject for signs of pendulous crop.

IV. *Legs and feet*

- A. Drumsticks and thighs: Plump, well-meated, and of a size sufficient to provide a well-balanced carcass. Reject if undersized or straight-sided.
- B. Shanks of moderate length, strong, sturdy, not too short or too long, not coarse. Reject for legginess, abnormally short shanks, twisted shanks, tendencies toward bowlegs, knock-knees, slipped tendons, swollen or malformed hocks.
- C. Feet: Reject for off-colored or crooked toes, bumblefoot, swollen feet. One or two slightly crooked toes permitted in females but not in males.

[5] By S. J. Marsden, Bureau of Animal Industry; revised by N. T. I. P. Committee on Selection and Procedures for the Breeding Stages.

V. *Wings and tails:* Reject for split wing, slipped wing, twisted or off-colored wing and tail feathers.

VI. *Balance*

A. Depends primarily upon leg placement; poorly balanced birds have legs placed too far back.

B. Is indicated by keel-leg relationship when bird is suspended by the legs, the body vertical and relaxed. Well-balanced birds show no decided gap between drumsticks and rear end of keel. Reject birds with a conspicuous gap—a broken or notched profile. Keel should extend well back between the legs.

VII. *Skeletal proportions:* Moderate depth; keel nearly equal in length to shank in market-age birds; slightly longer than shank in birds 32 weeks and older. Body depth should be about one-fifth greater than length of keel in all except Beltsville Small Whites, in which it should be about one-fourth greater. Measure by calipers or by spread hand. Reject for shallow body or short keel.

VIII. *Plumage color:* Should conform reasonably well to standard requirements for the various varieties.

IX. *Size:* Average weights, according to variety and age, are shown in table 1, page 7. Reject for decided underweight or, in small varieties, decided overweight.

X. *Quick-Market Maturity:* Quick-maturing turkeys are more efficient in the use of feed.

A. The state of maturity can be checked accurately and effectively only at 22 to 26 weeks for small-type and 24 to 30 for medium- and large-type turkeys. Quick-maturing specimens will have the most market finish at the ages indicated.

Reject birds not showing proper degree of maturity. Small type turkeys should finish to U. S. Grade A quality or better within 22 to 26 weeks; large- and medium-type birds within 24–30 weeks. In the absence of a thorough check as above, eliminate all obviously late-maturing specimens (those that are of only U. S. Grade C quality at the ages mentioned or later).

B. Market condition is indicated by:

1. Fat in skin. Have an assistant hold a bird so that breast skin is relaxed, then pluck a few feathers from the sparsely feathered area between the two feather tracts of the breast at a point just to rear of a line drawn from shoulder to front point of keel. Take a fold of the skin between thumbs and forefingers of both hands. Exceptionally well-finished turkeys formerly designated as U. S. Grade AA in finish will have a thick creamy skin, a fold (a double thickness of skin) of which will be about 0.14 inch or more thick; well-finished turkeys equal to U. S. Grade A, 0.07 to 0.13 inch thick; fairly well-finished turkeys, equal to U. S. Grade B, 0.04 to 0.06 inch thick; and poorly-finished turkeys equal only to U. S. Grade C, 0.03 inch or less in thickness. This test is effective only at the point specified. Ignore fat in skin at other places on the body.
2. Few pinfeathers too short to be plucked cleanly. These feathers protrude less than about ⅛ inch. U. S. Grade A dressed turkeys are permitted to have a few short unpickable pinfeathers, but only a very small number on the breast. In the live bird, check for pinfeathers too short to be plucked on drumsticks, shoulders, and one of the two narrow feather tracts that run parallel to the keel bone and just above it on either side.

XI. *Carriage and action* (especially important in males)

A. Carriage, the bird standing or walking but not strutting:
Birds with good balance stand high at the shoulders, the back sloping from front to rear at a 35° to 40° angle. Reject for front-heaviness.

B. Action: Gait free, active, and easy. Reject for waddling, limping, paddling (swinging feet outwards), or crippled condition.

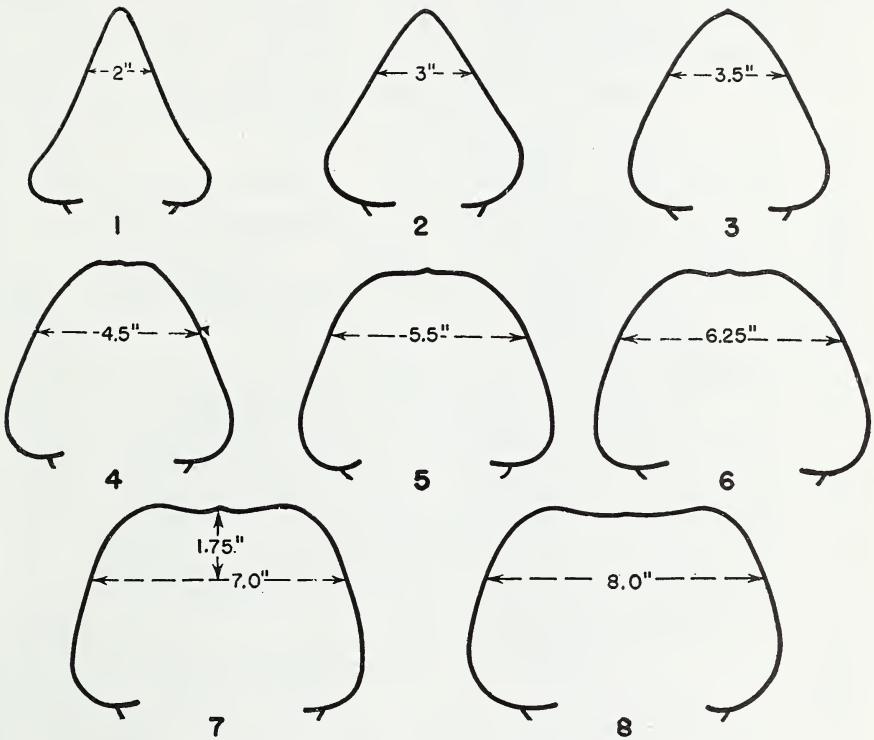


FIGURE 8.—Cross sections of turkey bodies at the widest point of the breast slightly to rear of front tip of keel bone. No. 1 is too narrow, No. 2 is acceptable, and No. 3 the ideal, conformation for well-matured turkeys of both sexes and all varieties except those classified as broad-breasted. No. 3 also illustrates minimum width for turkeys of the broad-breasted strains and varieties, and Nos. 4, 5, and 6 are desirable widths for these turkeys, No. 5 being the ideal. Nos. 7 and 8 represent exceptionally wide and flat conformation which is usually accompanied by undesirable breeding and production factors.

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Health is the foundation of successful husbandry, since upon it depends successful production and reproduction. Constitutional vigor and sanitation provide the best insurance against ill health. Every turkey grower and every hatcheryman, therefore, is under obligation to maintain the health of his market and breeding stock, and to keep his premises in the best possible state of sanitation.

Turkeys should be maintained in pens or on ranges completely segregated from other poultry as an aid in the control of blackhead (enterohepatitis), pullorum disease, and other diseases transmissible to turkeys. Turkey eggs should be incubated and hatched in separate incubators (preferably in separate rooms) from chicken eggs, and poults should be brooded in separate rooms from chicks to guard against the spread of pullorum and paratyphoid infection.

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